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| Notice of Allowability | Application No. | Applicant(s) |
| | 10/716,572 | WU ET AL. |
| | Examiner DANIEL G MARIAM | Art Unit 2621 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to an amendment filed 8/30/04 & a telephone interview dated September 14, 2004.

2. The allowed claim(s) is/are 24-40 (which will be rnumbered as 1-17).

3. The drawings filed on 15 April 2004 are accepted by the Examiner.

4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some* c) None of the:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. ____.

3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

1) hereto or 2) to Paper No./Mail Date ____.

(b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- 1. Notice of References Cited (PTO-892)
- 2. Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 04212004
- 4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
- 5. Notice of Informal Patent Application (PTO-152)
- 6. Interview Summary (PTO-413),
Paper No./Mail Date 09142004 .
- 7. Examiner's Amendment/Comment
- 8. Examiner's Statement of Reasons for Allowance
- 9. Other _____



DANIEL MIRIAM
PRIMARY EXAMINER

EXAMINER'S AMENDMENT AND ALLOWANCE

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Sandra Poteat Thompson (Reg. No. 46,264) on September 14, 2004.

2. The application has been amended as follows:

Amend the preliminary amendment as follows:

On page 3, under the heading "IN THE SPECIFICATION" delete "**divisional**" and replace it with "**continuation**" - -

Amend claim 24 as follows:

At line 10, after the limitation "interface" insert "connected to" - -

At line 11, after the limitation "device" insert "for I/O communication between the computer and said at least one peripheral device" - -

Allowance

3. Claims 24-40 are allowed. The claims will be renumbered as 1-17.
4. The following is an examiner's statement of reasons for allowance: none of the prior art of record teach or fairly suggest, among other things, a crimp measurement system that includes: a computer, wherein the computer comprises a processor and an associated stored program and wherein the program is stored in a computer readable medium and wherein the computer and the

associated stored program divides an acquired video image of a moving crimped tow into two non-interlaced images; and a plurality of progressive scanning video cameras, wherein the cameras are used to acquire the video image of the moving crimped tow. These features in combination with all of the other elements of the claims are not taught or fairly suggested by any of the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Number 4,274,746, 6043840, 6340992, and 6392712; and European Patent Number EP 0459826 and PCT WO97/40341.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G MARIAM whose telephone number is 703-305-4010. The examiner can normally be reached on M-F (7:00-4:30) FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LEO BOUDREAU can be reached on 703-305-4607. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DANIEL MIRIAM
PRIMARY EXAMINER

September 15, 2004

- Claim 37: The crimp measuring system of claim 24, further comprising a start-up mode for processing start-up portions of a crimped tow and for signaling a normal condition upon the start-up portions satisfying a predefined criteria.
- Claim 38: The crimp measuring system of claim 24, wherein the processor and the stored program divides non-interlaced image into a series of horizontal bands and for establishing an intensity profile of each of the bands by averaging pixel intensity of sequential horizontal lines within each of the bands.
- Claim 39: The crimp measuring system of claim 24, wherein the processor and the stored program processes the data as minima and maxima intensity profiles wherein a maxima is labeled as a crimp peak if difference in intensity between the maxima and its two neighboring minima exceeds an operator-specified intensity threshold value.
- Claim 40: The crimp measuring system of claim 24, wherein the processor and the stored program calculates distances of neighboring crimp peaks, compares the distances with operator-specified thresholds, groups the crimp peaks into one of a micro, normal or large categories, and tabulates overall crimp statistics for a non-interlaced image.

IN THE SPECIFICATION

Insert the following before "Field of the Invention":

Continuation
This application is a divisional of allowed application Serial Number 09/621,845, filed
July 24, 2000, which is now US Patent No. 6,674,887 issued on January 6, 2004

REMARKS

No new matter was added by this preliminary amendment.

Please use 30-5081 DIV (4580) as the docket number for this application.

APPARATUS AND METHOD FOR CHARACTERIZING FIBER CRIMPS

BACKGROUND OF THE INVENTION

This application is a continuation of allowed application Serial Number 09/621,845 filed July 24, 2000 which is now US patent no. 6,674,087 issued on January 6, 2004.

1. Field of the Invention

5 This invention relates generally to an apparatus and a method for measuring crimp characteristics of fibers; more specifically, an apparatus and method for characterizing fibers in a moving crimped tow.

2. Description of the Prior Art

10 Manufactured or synthetic fiber filaments are usually crimped into a tow before being cut into staple for further processing for various uses such as tops, slivers or yarns. The fibers are usually crimped by passing the fibers through a crimping apparatus to produce waves or 15 crimps. The quality of manufactured fibers is often measured by crimp characteristics such as crimp uniformity, number of crimps per inch, crimp frequency, etc. Until recently, the crimp properties have been measured by manual examination of a cut portion of fiber, for example, by counting the number of crimps per unit length.

20 It follows that automated systems for measuring crimp characteristics would greatly improve the speed and accuracy in characterizing the fibers, enabling on line adjustments in the production process, and the production of fiber staple according to specifications.

25 Various types of automated systems for measuring crimp characteristics have previously been proposed. Generally, the systems include a light source for illuminating the crimped tow; a photographic element for acquiring an image of a portion of the crimped tow; circuitry for processing the acquired image; and a display for displaying the measured crimp characteristics.

30 One type of system employs a conventional TV camera to acquire the image of the moving crimped tow. As is apparent to one skilled in the art, a TV camera captures an image pattern and converts the image as electrical charges corresponding to the brightness levels of the moving crimped tow. The charges are converted to a video signal in a 35 sequential order of picture elements. The picture elements are displayed

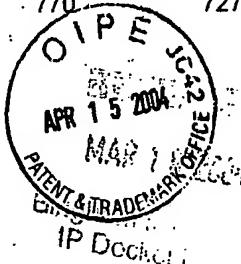


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| APPL NO. | FILING OR 37.1 (c) DATE | ART UNIT | FIL FEE REC'D | ATTY.DOCKET NO | DRAWINGS | TOT CLMS | IND CLMS |
|------------|----------------------------|----------|---------------|--------------------|----------|----------|----------|
| 10/716,572 | 11/18/2003 | 2621 | 770 | 7270015001-3227000 | 21 | 19 | 1 |

Bingham McCutchen LLP
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 San Francisco, CA 94111-4067



CONFIRMATION NO. 6276

FILING RECEIPT



OC00000012048328

Date Mailed: 03/08/2004

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Yejia Wu, Residence Not Provided;
 Nicholas Leoncavallo, Residence Not Provided;
 Thomas Tam, Residence Not Provided;

Domestic Priority data as claimed by applicant

This application is a ^{Continuation} of 09/621,845 07/24/2000 PAT 6,674,887

Foreign Applications

If Required, Foreign Filing License Granted: 03/08/2004

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

Title

Apparatus and method for characterizing fiber crimps

Preliminary Class